REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claims 21-23, 25-27, 29, and 38-46 are pending in this application. Claims 41-46 are added by the present response. Claims 21, 23, 25, 27, 29, and 38-40 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. patent 5,165,162 to Charles. Claims 22 and 26 were objected to as dependent upon rejected base claims, but were noted as allowable if rewritten in independent form to include all of the limitations of their base claims and any intervening claims.

Initially, applicants gratefully acknowledge the indication of the allowable subject matter in dependent claims 22 and 26. With respect to that indication of allowable subject matter the present response sets forth new independent claims 45 and 46 for examination. New independent claim 45 corresponds to a combination of previously pending claims 38 and 22 and new independent claim 46 corresponds to a combination of previously pending claims 39 and 26. Applicants submit that new claims 45 and 46 are allowable based on the indication of allowable subject matter in the outstanding Office Action.

Addressing now the rejection of claims 21, 23, 25, 27, 29, and 38-40 under 35 U.S.C. § 102(b) as anticipated by Charles, that rejection is traversed by the present response.

It is initially noted that each of independent claims 29 and 38-40 is amended by the present response to clarify features recited therein. Specifically, independent claim 29 now further recites that "the plurality of gaps have a width and are spaced at a pitch to extend a frequency of operation of the magnetic head up to a resonant frequency". The other independent claims 38-40 are similarly amended. Such subject matter is fully supported by the original specification, for example at page 8, lines 6-10.

The present response also sets forth new dependent claims 41-44 for examination that clarify the resonant frequency f_r based upon the disclosure in the present specification at page 7, line 18 to page 8, line 10.

The subject matter now clarified in each of independent claims 29 and 38-40 is believed to clearly distinguish over the applied art to Charles.

First, applicants respectfully submit that Charles does not teach or suggest any type of control of a gap or wall of insulating material having a width and pitch to extend the frequency of operation of the magnetic head up to a resonant frequency.

In contrast to the claimed invention, Charles discloses a method for reducing eddy currents in magnetic cores and windings for magnetic circuit components including, conventionally, one or two air gaps to control inductance[1], and in particular for a toroidal inductor. The object of the device of Charles is not to create new gaps but to divide up a large gap into a plurality of small gaps, the sum of which is equal to the large gap.[2]

In contrast to Charles, the claimed invention does not have as an object to reduce eddy currents but instead to increase operating frequency by reducing the effective value of magnetic permeability by acting on a demagnetizing field.[3] The claimed invention runs counter to previous tendencies by advocating a reduction in permeability.[4]

The method of Charles limits the size of a single air gap by introducing a plurality of small air gaps, to limit the amplitude of field losses out of the magnetic circuit, the field losses inducing currents in the magnetic circuit and in the windings. Thereby, Charles has as an objective to minimize eddy current losses[5], which differs from an objective of the claimed invention to act on a larger frequency spectrum. The claimed invention allows an increasing

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[1] Charles at column 1, lines 15-25.
[2] Charles at column 3, lines 62-64.
[3] See for example the present specification at page 4, line 12 to page 5, line 30.
[4] See for example the present specification at page 5, lines 21-22.
[5] Charles at column 1, lines 30-32.

of frequency of operation of magnetic circuits, which is not the case with the method of Charles.

Charles also mentions the use of a magnetic material having a high permeability on the order of 2000,[6] which is in contrast to one object of the claimed invention of adjusting the permeability by reducing it to a value allowing it to work at a desired value of frequencies (typically from some tens to some hundreds MHz) by controlling the width of the gaps.

Moreover, the method of Charles concerns macroscopic objects of a size greater than 0.5 inch,[7] and the method of Charles cannot be used for a thin film magnetic circuit fabricated by an integrated circuit technique.

In such ways, applicants respectfully submit that the teachings in Charles differ from the claimed invention, particularly in view of the above-noted clarifications to the claims.

In such ways, applicants respectfully submit that each of independent claims 29 and 38-40, and the claims dependent therefrom, also patentably distinguish over the applied art to Charles.

[6] Charles at column 2, lines 33-38.
[7] Charles at column 2, lines 33-55.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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